Darshan Thakur

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Professional Summary

Mechanical Engineer with over 3 years of experience executing mechanical design, simulation, and thermal optimization projects across defense, transportation, and consumer product domains. Currently completing a master's in mechanical engineering at Trinity College Dublin. Apply advanced tools such as CAD, FEA, and CFD to develop reliable, efficient mechanical systems. Lead simulation workflows and coordinate with cross-functional teams to meet performance targets and regulatory standards. Focused on contributing engineering expertise in product development, system modeling, and thermal performance improvement.

Key Skills

- **3D Modelling & 2D Drawing:** SolidWorks, AutoCAD, Siemens NX, PTC Creo, Autodesk Inventor
- **Simulation/Analysis Software:** Ansys Workbench, Simcenter FLOEFD, Hypermesh, SolidWorks Simulation, SolidWorks CFD, Motion View, EDEM, SimSolid, Abaqus
- **Design Standards:** ISO, ASME, ASTM, MIL STD
- **Soft Skills:** Team collaboration, Project management, Technical documentation, Critical thinking
- **Programming Language:** MATLAB, Python

Professional Experience

Junior Design Engineer | Ansycad Solutions | Mumbai, India
01/2022 – 08/2024

- Created 3D CAD models and technical drawings for mechanical assemblies in compliance with ISO and ASME standards.
- Conducted finite element analysis (FEA) and multi-body dynamics (MBD) simulations to validate product performance under structural and dynamic loads.
- Performed computational fluid dynamics (CFD) analysis to improve thermal management for data center enclosures and electronic housings.
- Coordinated with teams in manufacturing, testing, and procurement to deliver final assemblies.
- Documented design processes and addressed client feedback in structured technical reports.

Key projects

- Defense & Aerospace: Military shelters, Missile transporters, Missile launchers
- Transportation & Mobility: Trailers, Tippers, Cranes
- Consumer Goods: Pallets**,** Cookware's**,** Furniture

Team Member | Team MH08 Formula Racing | India
01/2019 – 08/2020

- Supported chassis design and material selection using CAD tools for performance and safety optimization.
- Assisted in composite manufacturing and assembly, gaining hands-on fabrication experience.

Education

MSc in Mechanical Engineering | Trinity College Dublin | Dublin, Ireland
09/2024 – Present
Relevant coursework: Advanced Thermal Fluid Design, Low Carbon Transport Technology, Solar Energy

B.E. Mechanical Engineering | University of Mumbai | India
07/2018 – 08/2021
Relevant coursework: Finite Element Analysis, Industrial Automation, Mechanical Vibrations
Grades: 8.92/10

Diploma in Mechanical Engineering | University of Mumbai | India
06/2015 – 06/2018
Relevant coursework: Engineering Drawings, Advance Manufacturing Processes, Refrigeration & Air Conditioning
Grades: 80.47%

Research Projects

Benchmarking and Optimizing Enhanced Natural Convection Heat Sinks
05/2025

- Developed a standardized methodology to evaluate and optimize the performance of heat sink designs under natural convection.

Design and Development Low-Cost Portable Cooler for Transport and Storage of Vaccines
04/2025

- Engineered a low-cost, portable vaccine cooler to maintain +2 °C to +8 °C for 25+ hours in 35 °C ambient, storing up to 840 vials without constant power.

Design and Development of Graphics Card Cooler
03/2025

- Designed a water-cooling system for NVIDIA RTX 3090, achieving 46.65% power reduction through thermal optimization.

Design and Development of Novel Heat Exchanger Shapes
02/2025

- Created a dual-purpose radiator-bookshelf delivering 1000 W at 20 kPa, saving 35% space and adding 0.8 m^3 of shelving.

Experimental evaluation of advanced UAV noise reduction technology
11/2024

- Led aerodynamic and acoustic testing of UAV blade designs, boosting thrust by 31.96% and reducing high-frequency noise by 21.2%.

Design and Fabrication of HDPE Pipe Welding Machine
06/2021

- Designed and built a cost-effective HDPE pipe welding machine, reducing unit price by 43% for commercial manufacturing.

Certifications & Memberships

- Member, American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)
- Certified in Autodesk Fusion 360 Integrated CAD/CAM/CAE, Autodesk
- Certified CATIA V5 Express Training
- Certified SolidWorks Associate Training
- Project Management Essentials Certified
- Member, Engineers Ireland